| | | |
|---|---|---|
| | Property of Contractor | |
| 202.15 | Removing Existing Manhole or Catch Basin | Each |
| 202.17 | Removing Existing Structural Concrete | Lump Sum |
| 202.19 | Removing Existing Bridge | Lump Sum |
| 202.20 | Removing Bituminous Concrete Pavement | Square Meter [Square Yard] |
| 202.202 | Removing Pavement Surface | Square Meter [Square Yard] |
| 202.203 | Pavement Butt Joints | Square Meter [Square Yard] |
| 202.30 | Removing Existing Concrete Wearing Surface | Lump Sum |

## SECTION 203 - EXCAVATION AND EMBANKMENT

203.01 Description This work shall consist of removing, hauling, disposing and compacting, if required, of all material not being removed under some other item, encountered for the construction of the project in accordance with the specifications and in reasonably close conformity with the lines, grades, thickness and typical cross sections shown on the plans or established. Excavation, except structural excavation, will be classified as common excavation, rock excavation, unclassified excavation, as hereafter defined. Material not classified as excavation that is required to construct embankments, backfill trenches and holes shall be classified as borrow.

a. Common Excavation shall consist of removing all material encountered in grading the project within the limits of construction and in driveways, which is not otherwise classified and paid for. Common excavation shall include the removing and disposing of boulders, solid mortared stone masonry, and concrete masonry when each is less than 2 $m^3$ [2 $yd^3$] in volume and all soft and disintegrated rock which can be removed with ordinary excavating machinery.

It shall include grubbing, which consists of the removing and disposing of all stumps, roots, bushes, grass, turf or other objectionable material and it shall include berm ditches and cut slope downspouts.

Common Excavation shall include muck removal, which shall consist of excavating and disposing of saturated or unsaturated mixtures of soils and organic matter not suitable for embankment foundation material regardless of moisture content.

Common Excavation shall also include removing and disposing of all earth material encountered in excavating for permanent stream channel diversion, channel widening or straightening, when designated on the Plans, outside the limits of structural excavation or other classifications.

b. Rock Excavation shall consist of removing hard igneous, metamorphic and sedimentary rock which cannot be excavated without drilling and blasting or drilling and splitting and all boulders, solid mortared stone masonry, concrete masonry, each having a volume of 2 $m^3$ [2 $yd^3$] or more.

c. Unclassified Excavation shall consist of common excavation and rock excavation as classified above and not measured separately.

When identical unit prices are bid for Common Excavation and for Rock Excavation, such bids shall be considered as a bid for Unclassified Excavation of the combined items and shall be so classified.

203.02 Materials Borrow shall consist of approved material required for the construction of embankments or for other portions of the work as designated and shall be obtained from beyond the limits of the required cut slopes. Unless otherwise designated in the contract, the Contractor shall make their own arrangements for obtaining borrow and shall pay all costs involved. No material shall be removed from an approved borrow pit except for use under this contract.

Material shall meet the requirements of the following Subsections of Division

700 - Materials:

| | |
|---|---|
| Common Borrow | 703.18 |
| Granular Borrow | 703.19 |
| Gravel Borrow | 703.20 |
| Rock Borrow | 703.21 |

Slope blanket backfill material shall meet the requirements of aggregate for base or aggregate for subbase, Type D specified in Subsection 703.06 - Aggregate for Base and Subbase, as directed.

203.03 Unauthorized Use of Materials No common excavation, rock excavation, unclassified excavation or borrow which is designated for use in embankments or backfill may be diverted for the Contractor's own use. Any unauthorized use of such material will be adjusted by deducting quantities, measured by the most appropriate method, as determined, and 115% of the quantity deducted from the total amount.

203.04 General Prior to beginning excavating, grading, and embankment operations in any area, all necessary clearing in that area shall have been performed in accordance with Section 201 - Clearing Right-of-Way.

Unsuitable material shall be disposed of as directed and no material shall be wasted without permission. Excavating operations shall be conducted so that material outside of the limits of slopes will not be disturbed.

The Resident may designate as unsuitable those soils which cannot be properly compacted in embankments and all such unsuitable material shall be disposed of in approved waste storage areas or waste areas as directed.

Suitable material taken from excavation shall be used in the construction of embankment, subgrade, and for backfilling as indicated on the plans, or as directed, except that if the volume of suitable excavated material exceeds that required to construct the embankments to the grades indicated, the excess shall be

used as directed or wasted.

The Contractor shall give the Resident sufficient time before beginning excavation to take necessary cross section elevations and measurements. The Contractor shall not excavate beyond the dimensions, slopes and elevations established, and no material shall be removed prior to the staking out and cross sectioning the site. Unless otherwise authorized, borrow material shall not be placed until after all suitable excavation has been placed in the embankment unless the use of granular borrow is called for on the plans or required for use under embankments or in conjunction with the use of excavated material or for the maintenance of traffic. If the Contractor places more borrow than is required and thereby causes a waste of suitable excavation material, the amount of such waste will be measured by the method deemed most appropriate and 115% of the amount deducted from the borrow volume.

When different unit prices are bid for Common Excavation and Rock Excavation, the Contractor will be required to strip earth from the ledge to provide an opportunity for the Resident to take the necessary measurements. When identical prices are bid for Common Excavation and Rock Excavation, the Contractor will not be required to strip the earth from the ledge.

When it is necessary to temporarily remove fencing designated to remain, the fencing shall be replaced by the Contractor at their expense in as good a condition as it was originally. The Contractor shall be responsible for the confinement of livestock when a portion of the fence is removed. When new fencing for confinement of livestock is required, it shall be erected before existing fencing is disturbed. Where new fencing cannot be erected in its final location, temporary fencing shall be at the Contractor's expense.

Excavating for obliterating old roadways or salvaging material from old roadways shall include all grading operations necessary to incorporate the old roadway into the new roadway and surroundings or placing salvaged material in a stockpile as directed.

The degree of finish for grading ditches and slopes, both fill slopes and cut slopes, shall be that obtainable from machine operations. Ditches shall be constructed to within 150 mm [6 in] above or below the grade called for on the cross sections or as otherwise modified but in no case shall the ditch be finished in a condition that will not allow the flow of water. Ditches shall be graded to the extent that puddles will not form. All provisions for measurement and payment limits shall remain in force and no payment will be made for unauthorized work done beyond authorized pay limits.

Unstable slopes subject to sliding and slumping shall be excavated to the lines and grades shown or as directed. Immediately after each location is excavated approved stone or granular slope blanket backfill material shall be placed and shaped to match the adjacent slopes.

Ledge slopes shall be scaled (cleaned of all loose material) immediately as the excavation proceeds. The ledge slope shall then be examined by the Contractor to determine if the slope is stable. If the slope is not deemed stable upon this examination, then immediate steps shall be taken by the Contractor to insure the stability of the slope during construction. There will be no additional pay for any temporary protection required for the construction of the project.

203.041 Salvage of Existing Bituminous Pavement All existing bituminous pavement designated to be removed under this contract must be salvaged for utilization. Existing bituminous pavement material shall not be deposited in any waste area or be placed below subgrade in any embankment.

Methods of utilization may be any of the following:

1. Used in the upper 150mm [6 in] of travelways and full depth in driveways as aggregate base or subbase provided the material contains no particles greater than 75 mm [3 inch] in any dimension.

(a) Placing, shaping, compacting, stabilizing, and surface tolerance shall be in accordance with applicable provisions of Section 304 -

Aggregate Base and Subbase Course, except that the material shall be placed in a layer of uniform thickness not to exceed 150 mm [6 in] and compacted to the extent that the material is stabilized and keyed together. No more than one layer may be used.

(b) If the material is blended, it must be blended with an aggregate that meets the gradation and quality requirements for Aggregate Subbase Course, Gravel - Type D noted in Subsection 703.06.

2. Used as a replacement for untreated aggregate surface course on entrances provided the material contains no particles greater than 50 mm [2 in] in any dimension. Payment will be made under Pay Item 411.09 Untreated Aggregate Surface Course. Paragraphs 1(a) and 1(b) of this provision will apply or as directed by the Resident.

3. Recycled as stabilized base or plant mix pavement if so designated in the contract.

4. Stockpiled at commercial or approved sites for commercial or MDOT use.

5. Other approved methods proposed by the Contractor, which will assure proper use of the existing bituminous pavement.

The cost of salvaging bituminous material will be included for payment under the applicable pay item, with no additional allowances made, which will be full compensation for removing, temporarily stockpiling, and rehandling, if necessary, and utilizing the material in the roadway or stockpiling at an approved site as described above. The material will also be measured and paid for under the applicable Pay Item for which it is reused.

203.05 Roadway Excavation Roadway excavation shall be maintained in such condition that the excavation surface will be well drained. Temporary drains, drainage ditches and culverts shall be constructed to intercept and divert water that

may adversely affect the condition of the excavation and the prosecution of the work.

Excavation in general, shall proceed in an upgrade direction. Subgrades shall be promptly graded and rolled to minimize absorption of water. Adjacent ditches shall be graded to the extent that puddles will not form. Grubbing areas which cannot be drained shall be promptly filled with approved excavation or borrow to such an elevation that surface drainage will be effective. If, due to unusual circumstances, drainage by gravity cannot be accomplished, the Resident may require the Contractor to provide adequate means of pumping the area. Pumping may be required on a 24 hour a day continuous basis and no direct compensation for cost of pumping will be made.

Muck shall be removed in such a manner to insure its complete removal with no areas remaining or trapped below the embankment. Excavated muck shall be deposited in designated waste storage areas as shown on the plans or as otherwise directed. When muck is encountered that was not contemplated on the plans, it shall be disposed of as indicated above.

Excavation adjacent to roots of trees or shrubs, which are to remain, shall be removed by hand.

When excavating results in a subgrade of unsuitable soil, the Resident may require the Contractor to remove the unsuitable material and backfill the area with approved material. The Contractor shall conduct their operations in such a way that the Resident can take the necessary measurements before the backfill is placed.

Material classified as rock, whether paid for as rock excavation or unclassified excavation, shall be excavated to the required depth. Care shall be taken that undrained pockets will not be left in the surface of the rock remaining.

The space between the rock remaining and the normal subgrade shown on the plans shall be backfilled with the designated aggregate subbase or aggregate base,

pulverized rock or other approved material. The Contractor shall conduct their excavating and hauling work in a manner that will cause as little contamination as possible. Fine grading at the normal subgrade line will be required unless aggregate subbase or aggregate base material is used.

Ditches in rock cuts shall be constructed with no protrusions of rock above the designated rock cut pay lines. The space between the rock remaining and the finished surface of the ditch shall be backfilled with broken rock.

For earth and rock backslopes designated to be constructed on a 2 horizontal to 1 vertical slope or flatter, the slope shall be uniformly finished to within 150 mm [6 in] above or 150 mm [6 in] below the lines designated, but in no case shall projections of rock extend over 150 mm [6 in] above the actual finished surface of the slope as constructed. Rock backslopes designated to be constructed on a ¼ horizontal to 1 vertical slope shall be excavated at least to a vertical plane.

Buried structures and obstructions, as specified in Section 104.3.13 - Materials and Items Found on the Project, located within the designated limits of the work, shall be removed as part of the applicable excavation item for type of work being performed. Buried structures and obstructions located below or outside the required excavation, whose removal is ordered, shall be removed and such removal paid for as Common Excavation, Rock Excavation or Unclassified Excavation, whichever is applicable.

203.06 Waste Areas It shall be the responsibility of the Contractor to obtain necessary permits and approvals from all pertinent State and Federal agencies and from the local municipality before the establishment of waste areas off the project. In addition, written permission of the property owners shall be obtained by the Contractor, including permission to dispose of waste in the area. Copies of all required permits shall be given to the Resident.

Provisions shall be made for temporary and permanent erosion controls at waste areas, which shall include, but not necessarily be limited to, grading the surface to drain, covering the surface with loam or other earthy material that will

support growth and seeding and mulching. Seed and mulch shall be applied in accordance with Section 618 - Seeding.

Entrances to waste areas located within wooded areas shall be in accordance with Subsection 203.07 - Haul Roads.

When waste areas are located within wooded areas, a screen of trees at least 30 m [100 ft] wide shall be maintained between the nearest edge of the waste area and the right-of-way line or the construction limit line.

The entrances to waste areas shall be treated in the same manner as the waste area except that if entrances in wooded areas exceed 5 m [16 ft] in width the ground shall also be replanted with trees compatible with the type growth in adjacent area. These plantings shall extend for a length of 30 m [100 ft] along the entrance road or as otherwise directed.

All trees that are damaged, uprooted or otherwise moved as a result of the waste material, and trees that have had waste material placed around them to the extent that they may die, shall be cut and removed at the expense of the Contractor.

Designated waste areas may be established by the Department. When such waste areas are established, the location and other conditions relating to them will be described in the Special Provisions or on the plans.

Waste material shall not be disposed of in wetlands without prior approval and the acquisition by the Contractor of all necessary Federal, State and local permits.

"Wetlands" are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. The Contractor shall be solely responsible for delays and costs resulting from or associated with the proposed disposal of waste material in wetlands.

203.07 Haul Roads In wooded areas, haul roads shall be kept to a minimum width and placed at approximately right angles to the road or angled away from view of oncoming traffic.

203.08 Borrow The location of all borrow pits and rock borrow quarries shall be approved in accordance with Section 105.8.6 - Pit Requirements and Section 657 - Rehabilitation of Pits.

The Contractor shall notify the Resident sufficiently in advance of opening any borrow areas so that cross section elevations and measurements of the ground surface after stripping may be taken and the borrow material can be tested before being used. Existing pits shall, when directed, be graded and shaped by the Contractor before being cross-sectioned for original measurements.

Borrow pits shall be excavated to neat lines and all slopes shall be dressed uniformly and left in a neat condition. Before the completion of the project, all borrow pits and haul roads shall be graded to blend with adjacent ground, loamed if necessary, seeded and mulched. When practicable, the bottom of all pits shall be graded to drain the pit.

203.09 Preparation of the Embankment Area When the depth of the embankment, measured vertically below subgrade, does not exceed 1.5 m [5 ft] the area on which the embankment is to be placed shall be grubbed as defined in Subsection 203.01 a. When the embankment is more than 1.5 m [5 ft], as measured above, all vegetation in the embankment area shall be cut as specified in Section 201 - Clearing Right-of-Way.

When embankment is to be placed and compacted on hillsides or where new embankment is to be compacted against existing embankment, slopes steeper than 1 vertical to 2 horizontal shall be continuously benched by excavating steps into the existing material of sufficient width to permit operations of placing and compacting the additional material. Material removed shall be placed and compacted along with the new embankment material. When such benching is

required, it will be as indicated on the plans, called for in the special provisions or as directed.

203.10 Embankment Construction - General Layers of material for embankments shall start at the deepest portion of the fill and as placement progresses, layers shall be constructed approximately horizontal. Except for the first layer over swampy ground and cleared areas, roadway embankment of earth material shall be placed in layers not exceeding 200 mm [8 inches], loose measure, unless otherwise approved and the material compacted as specified before the next layer is placed.

When it is impractical to construct layers over the full width of the cross section, partial width layers may be authorized.

Effective spreading equipment shall be used on each layer to obtain uniform thickness. Each layer shall be crowned and maintained free of ruts and ridges to provide direct drainage of water from the embankment. As the compaction of each layer progresses, grading and manipulating will be required to assure uniform density. Construction equipment shall be routed uniformly over the entire surface of each layer.

Embankments within 15 m [50 ft] of a bridge abutment, structural plate or box culvert type structure shall be compacted by the moisture and density control method as specified in Section 203.12 - Construction of Earth Embankment with Moisture and Density Control, except that rock embankments may be constructed over culverts as specified in Section 203.15 - Construction of Rock Embankments.

Water shall be added or removed, if necessary, in order to obtain required compaction. Aeration of excavated roadway materials to reduce the moisture content to within specified limits shall be as specified under Section 631.04 - Aerating.

When placing layers of specified thickness is not feasible, such as filling in water or over swampy ground, the initial layer of embankment may be constructed

in one layer to an elevation where bridging will be accomplished. In embankment areas where no grubbing is required, the material placed in the first layer shall be of sufficient depth to cover all stumps.

When the excavation or borrow consists predominantly of fragments of such size that the material cannot be placed in embankments in layers of specified thickness without breaking down the pieces, such material may be placed in layers in thickness not exceeding the approximate average size of the larger rocks but in no case shall layers exceed 600 mm [2 ft]. Rocks exceeding this thickness shall be separated and collectively placed in accordance with the requirements for rock embankments. Each layer shall be leveled and smoothed with suitable leveling equipment and by even distribution of rock spalls and finer rock fragments or earth. The Resident may test any or all layers by moisture and density control as specified in Section 203.12 - Construction of Earth Embankment with Moisture and Density Control, which are constructed in depths exceeding 200 mm [8 in]. The layers so constructed shall not be placed above an elevation 600 mm [2 ft] below the finish subgrade. The remainder of the embankment shall be composed of suitable material smoothed and placed in layers not exceeding 200 mm [8 in], loose thickness, and compacted as specified for earth embankments.

Where guardrail is to be installed, rock shall not be placed in the embankment under the location of the guardrail to an elevation 1.2 m [4 ft] below the finished grade of the shoulder. Rocks, broken concrete and other solid materials shall not be placed in any portions of embankments where piling is to be placed or driven or where Utility facilities are to be placed.

Excess or unsuitable excavated material, including rock and boulders, which cannot be used in embankments shall be placed in the nearest available waste areas. When it is impossible to dispose of all material in the manner described, the remainder shall be disposed of in approved waste areas.

When material obtained from roadway excavation is unsatisfactory for use in the formation of embankments due to excessive moisture content, can be rendered satisfactory for such use by combining it with granular material, the unsatisfactory

material shall be combined with granular borrow or granular excavation when and as directed by the Resident.

If the embankment is required to be deposited on only one side of abutments, wing walls, piers or culvert headwalls, care shall be taken that the area immediately adjacent to the structure is not compacted excessively to the extent that it will cause overturning of or excessive pressure against the structure. When embankment is to be placed on both sides of a concrete wall, structural plate or box type structure, operations shall be so conducted that the embankment is always at approximately the same elevation on both sides of the structure.

At the close of each day's work, the embankment surface shall be graded, crowned, smoothed, rolled and sealed against infiltration of water.

The portion of the embankment and subbase outside a 1 vertical to 1½ horizontal slope ex-tending from the edge of the finished shoulder to the existing ground, as shown on the Standard Detail entitled "Disposal of Waste Materials", will be required to be compacted only to the extent that stability of the slope is assured. As construction of the embankment progresses, material placed in the portion of the embankment outside the 1 vertical to 1½ horizontal slope shall not be placed above the elevation of the surface of the main embankment unless provisions are made to allow drainage of surface water from the embankment. The surface of the slopes shall be finished to present a uniform neat appearance.

The portion of the embankment inside the aforementioned 1 vertical to 1½ horizontal slope lines shall be compacted in accordance with the designated embankment compaction requirements specified for the project.

203.11 Construction of Earth Embankment-Layer Method The layer method will be required unless otherwise specified. Unless otherwise approved the material shall be deposited and spread upon compacted material in full width layers not more than 200 mm [8 in] in depth, loose measure. Clay or loam soils shall be compacted by use of sheepsfoot or tamping type roller having a minimum weight on each tamper, under working conditions, of 1725 kPa [250 psi] of cross

sectional bearing area. Sand or gravel soils shall be compacted by vibratory type compaction equipment or by pneumatic tired equipment and, if necessary, by the addition of water. A combination of the above or other methods capable of producing equivalent results may be used. The compacting operations shall be continued until each layer is compacted to its full depth and width.

With approval, the Contractor may place layers in excess of 200 mm [8 in] and less than 600 mm [24 in], loose measure, providing the specified compaction requirements are obtained and the Contractor agrees to make necessary test excavation for the Resident to determine density.

The Contractor will be required to demonstrate that the compaction equipment and methods are obtaining satisfactory compaction.

Satisfactory compaction for the purpose of the demonstration is defined as not less than 90% of the maximum density. The maximum density shall be determined in accordance with AASHTO T180, Method C or D, corrected by the Soils Laboratory Adjustment Chart, available at the MDOT Central Laboratory, Bangor, Maine. Field density tests will be made in accordance with AASHTO T191, adjusted to include only the material passing a 19 mm [¾ inch] sieve or by an approved method using a calibrated nuclear device.

203.12 Construction of Earth Embankment with Moisture and Density Control The contract or Section 203.10 will designate the areas to be constructed with moisture and density control and the distance below subgrade to which such methods shall be applied. The moisture content at the time of compaction shall be suitable to obtain the required density. The maximum density shall be determined in accordance with AASHTO T180, Method C or D, corrected by the Soils Laboratory Adjustment Chart available at the MDOT Central Laboratory, Bangor, Maine. Field density tests will be made in accordance with AASHTO T191, adjusted to include only the material passing a 19 mm [¾ inch] sieve or by an approved method using a calibrated nuclear device.

All material in embankments above the elevation designated on the plans for

moisture density control shall be placed at a moisture content suitable to obtain the required density. Each layer placed with controlled moisture shall be compacted to not less than 90% of the maximum density.

Density requirements will not apply to the portions of embankments constructed of material which cannot be tested in accordance with AASHTO T191 or when the material contains more than 30% material retained on a 50 mm [2 in] square mesh sieve.

203.15 Construction of Rock Embankments The material for rock embankment shall be placed in compacted layers not exceeding 1 m [3 ft] in depth. Depositing the rock directly over the end of the fill from the hauling equipment will not be permitted; it shall be deposited on the fill and pushed into place. The top of the rock embankment shall be so choked that there will be no infiltration of the earth embankment placed on the top of the rock embankment.

This method shall be used only in fills in excess of 1.2 m [4 ft] in depth. In no case shall the rock embankment be placed within 300 mm [1 ft] of subgrade unless authorized.

When structures are located under rock embankment, they shall be covered with not less than 600 mm [2 ft] of earth excavation or borrow before the rock embankment is placed over the structures.

203.16 Winter Construction of Embankments Frozen material shall not be placed in the core embankment. The construction of embankments may continue during cold weather only when all frozen material in the top of the core embankment or the existing ground is moved to the waste area before placing additional material. When this procedure results in additional borrow quantity the additional borrow will not be paid for directly.

Compaction shall be in accordance with the specified method of embankment construction. When the prevailing temperatures are below -1°C [30°F] all material used in embankment construction shall have a moisture content, at the

time of compaction, equal to or less than the optimum moisture content.

The embankment shall not be constructed upon frozen material except that such construction of embankments may be allowed providing the total depth of the added fill, including bases, plus the depth of the frozen material beneath does not exceed 1.5 m [5 ft]. Frozen material may be left in the embankment only if it has been compacted as specified before freezing. The Contractor shall not resume construction of any embankments built in this manner until all frozen material has thawed. If test holes are required to make this determination they shall be dug and backfilled with satisfactory compaction at the Contractor's expense. Before additional material is added, uncompacted material on the surface of such embankments shall be either recompacted in accordance with the specified method of embankment construction or removed.

203.17 Preparation and Protection of the Subgrade Unless otherwise provided, the subgrade shall be brought to a condition of uniform stability and compacted for the full width of the roadway by grading and rolling operation and shall be maintained to no tolerance above or 75 mm [3 in] below the required grade and cross section. The surface shall be compacted to uniform density and stability and graded to the extent that puddles of water will not form. Additional material required as a result of low subgrade shall be furnished and placed at the expense of the Contractor.

The required compaction shall be the same as specified for embankments. When the subgrade occurs in cuts, the required compaction shall apply to a depth of 150 mm [6 in] below subgrade unless otherwise specified.

The Contractor shall protect the subgrade from damage. Ditches and drains along the roadway shall be maintained to effectively drain the subgrade. In no case shall vehicles be allowed to travel in a single track and form ruts. No material shall be deposited on a subgrade until the subgrade has been approved.

203.18 Method of Measurement Except as otherwise provided, excavation and borrow will be measured by the number of cubic meters [cubic yards] measured in

its original position by cross sectional elevations of the area excavated. Measurements will include slides in common excavation and unclassified excavation, not attributable to carelessness of the Contractor, and authorized excavation of earth, rock, shale, muck or other unsuitable material. Volumes will be computed by the average end area method or by other methods generally recognized as conforming to good engineering practice.

When granular borrow or gravel borrow is placed for backfill behind bridge abutments and around structural plate pipes, pipe arches, and plate arches to the lines, grades, and dimensions shown on the plans, the quantity measured for payment will be that portion of the number of cubic meters [cubic yards] shown in the Schedule of Items that is estimated for the structure.

This quantity is considered final, and no adjustments will be made except under the following conditions:

a. When the structure is founded on ledge, the quantity measured will be what is actually placed to maximum allowable horizontal dimensions shown on the plans.

b. When changes to the plans are made by the Resident.

Muck excavation, to be measured for payment as common excavation, will be the number of cubic meters [cubic yards] of material acceptably excavated from areas shown on the plans or other authorized areas not shown on the plans or placed in waste storage areas or hauled to an approved waste area. Muck excavation shall be measured in its original position by cross sectional elevations and the volume computed by the average end area method. If muck is stored in excess of the maximum slope requirements of any waste storage area, the amount requiring reloading, hauling and disposing of in other waste storage areas or approved waste areas will not again be measured for payment.

When it is impractical to measure excavation by the cross sectional method due to the erratic location of isolated deposits, acceptable methods involving three-

dimensional measurements may be used. When small quantities of borrow are involved and it is impractical to measure in its original position a quantity not exceeding 2,000 m³ [2,500 cubic yards] per item for a single project may be measured in vehicles at the point of delivery and a quantity not exceeding 5,000 m³ [6,500 cubic yards] per item for a single project may be measured in place. When measured in vehicles the quantity for payment shall be 90% of the quantity determined for earth and 75% of the quantity determined for rock as shown on delivery slips. When measured in place the amount for payment shall be 115% of the quantity so measured for earth material and 75% of the quantity so measured for rock.

Unless otherwise authorized, measurement for excavation in earth cuts will be made to the designated slopes. Field changes made by the Resident will be measured by cross sections or by other acceptable methods. Elevations for final cross sections shall be determined at the surface of the finished ground with no additional allowance for thickness of loam, sod, riprap, hay mulch, or other type of ground cover except that excavation for slope gravel blanket will be measured by the cubic meter [cubic yard].

Unless otherwise authorized, measurement for excavation in rock slopes designated to be constructed on a 1 vertical to 2 horizontal slope or flatter will be made to the designated slope line providing the finished slope is within tolerances described in Subsection 203.05 - Roadway Excavation. If the finished slope line is not within the tolerances described, payment will be made to the designated cut slope line or to the finished slope line, whichever yields the lesser quantity.

Unless otherwise authorized, measurement for excavation in rock slopes designated to be constructed on a 1 vertical to ¼ horizontal slope will be made to the designated slope providing the rock is excavated beyond a vertical plane. There will be no payment for material removed beyond the designated slope line.

Unless authorized, material placed in embankments outside a surface parallel to and 150 mm [6 in] beyond the neat line of embankment slope or 300 mm [12 in] beyond the neat line of the waste storage area in which waste has been placed

will not be included in the quantity for payment and will be deducted from the borrow at 100% of the material so measured in place.

The elevations for final cross sections for excavation shall be determined at the surface of the finished ground with no additional allowance for thickness of loam, sod, riprap, temporary erosion control blanket, hay mulch or other type ground surface except that excavation for slope gravel blanket will be measured by the cubic meter [cubic yard].

Measurements will be made for unsuitable materials actually excavated and removed to obtain proper compaction in cut sections and in foundations for fill sections.

Aeration of excavated materials to reduce moisture content to specified limits will be measured as specified under Section 631 - Equipment Rental.

203.19 Basis of Payment The accepted quantity of excavation and borrow will be paid for at the contract unit price per cubic meter [cubic yard] for each of the pay items included in the Schedule of Items. Payment shall be full compensation for obtaining borrow when required and for excavating, loading, hauling, placing, grading and compacting all material necessary for the formation of embankments. It shall also include full compensation for disposing of unsuitable and surplus material when necessary. It shall also include excavation in embankments for determining compaction density.

Haul, connected with the disposal of waste or surplus material or both, shall be limited to a maximum distance of 600 m [2,000 ft] beyond the limits of the project for disposal in flattening slopes or other roadway work. If no disposal areas are designated the haul shall be made to an approved waste area supplied by the Contractor.

Payment for removal of unstable material below subgrade in cuts will be paid at the contract unit price per cubic meter [cubic yard] for Common Excavation or Unclassified Excavation whichever is appropriate.

Payment for placing and compacting any backfill, except Special Backfill, placed in accordance with Section 206 - Structural Excavation, will not be paid for separately but will be included in the payment for any one of the related excavation items, provided however, there is suitable excavation material available in its original position at the time of backfilling. When there is no suitable material available for backfilling, the material authorized will be paid for under the contract item for the class of material used.

When rock is encountered and no item is included in the contract for its removal, the excavation of the rock will be paid for at 6 times the contract unit price for common excavation.

The furnishing and placing of backfill material between the rock remaining and the normal subgrade line of rock cuts will not be paid for directly, but shall be considered incidental to the work. The quantity of Aggregate Subbase or Aggregate Base for payment in rock cuts shall include only the material placed above the normal subgrade lines.

Earth material from beyond the designated slope lines on earth cut slopes as specified in Section 203.18 - Method of Measurement, and when authorized, may be paid for, when used to construct embankments, at the contract unit bid price for excavation or borrow, whichever is less. Costs for furnishing and placing material necessary to backfill and to grade rock cut slopes designated to be constructed on a slope of 1 vertical to 2 horizontal or flatter, will be considered to be included under the payment for the material used, either excavation or borrow.

When muck is encountered, the excavation of the muck will be paid for at the contract unit price bid for Common Excavation or Unclassified Excavation.

Excavation which requires more than one handling prior to final placement in the embankments including material placed as backfill and loamy top soil to be stockpiled and reserved for later use on the slopes, will be paid for at the contract unit price for Common Excavation, Unclassified Excavation or Rock Excavation,

as the case may be, for each handling approved. It may be paid for under another contract item for the second handling when so authorized. Each handling shall be considered to include the operations of excavating, loading, transporting, unloading and disposing of earth or rock material.

Excavation for unstable slopes for slope blanket backfill, as specified in Subsection 203.04 - General, will be paid for at twice the contract unit price bid for common excavation. Backfill material will be paid for as specified in Subsection 304.11 - Basis of Payment.

Excavation for benching to receive embankments will not be paid for directly but shall be incidental to the other contract items.

Water added to embankment material to aid in compaction will not be paid for directly but shall be considered included in the contract items.

Payment for compacting the soils in the abutment and pier areas, after the topsoil has been removed will not be made directly but shall be considered included in the other contract items.

Removing portland cement concrete pavement and portland cement concrete base course, when not included in the contract as a separate pay item, will be paid for under Pay Item 203.21 - Rock Excavation.

Payment for excavating or filling and compacting material in building or other foundation holes, whether existing or created by the removal of structures and obstructions, will be made under the appropriate pay item for excavation or borrow and no additional allowances will be made.

All work and materials required to grade, loam, seed and hay mulch waste areas and haul roads to and from waste areas to eliminate unsightly conditions and to control erosion will not be paid for directly but will be considered included in the work of the various classifications of excavation all as specified in Section 203.06 - Waste Areas.

Stripping pits to obtain necessary borrow will not be paid for separately but will be considered included in the other contract items.

When common excavation and rock excavation are reclassified as unclassified excavation, payment will be made for the reclassified items under Pay Item 203.22 - Unclassified Excavation, at the identical unit bid price.

Unless otherwise provided in contracts with common excavation, rock excavation or unclassified excavation items, grading, furnishing and placing loam, seed and mulch in waste areas shall be considered incidental to the contract and no separate payment will be made.

In Contracts that do not contain Common Excavation or Unclassified Excavation items, grading, furnishing and placing loam, seed and mulch in waste areas will be paid for under applicable pay items of the contract.

Payment will be made under:

| Pay Item | | Pay Unit |
|---|---|---|
| 203.20 | Common Excavation | cubic meter [Cubic Yard] |
| 203.2001 | Common Excavation - Plan Quantity | cubic meter [Cubic Yard] |
| 203.21 | Rock Excavation | cubic meter [Cubic Yard] |
| 203.22 | Unclassified Excavation | cubic meter [Cubic Yard] |
| 203.221 | Unclassified Excavation - Plan Quantity | cubic meter [Cubic Yard] |
| 203.24 | Common Borrow | cubic meter [Cubic Yard] |
| 203.25 | Granular Borrow | cubic meter [Cubic |

| | | |
|---|---|---|
| Yard] | | |
| 203.26 | Gravel Borrow | cubic meter [Cubic Yard] |
| 203.27 | Rock Borrow | cubic meter [Cubic Yard] |

## SECTION 204 - SHOULDER REHABILITATION

204.01 Description This work shall consist of rehabilitating existing shoulders by grading and compacting shoulders, and furnishing, placing, grading and compacting new shoulder aggregate to required grade.

204.02 Aggregates New shoulder aggregate for shoulder rehabilitation shall be material meeting the requirements of Section 703.10 - Aggregate for Untreated Surface Course and Leveling Course or Section 703.06 b. - Aggregate for Subbase, Type D.

New shoulder aggregate for add shoulder aggregate shall be material meeting the requirements of Section 703.11 - Aggregate for Shoulders or Section 703.06 b. - Aggregate for Subbase, Type D.

New shoulder aggregate used for shoulder rehabilitation or add shoulder aggregate will not be required to pass the Washington State Degradation Test.

204.03 Existing Shoulder The existing shoulder for rehabilitate shoulder shall be prepared by grading with power equipment to provide a surface on which to place an aggregate course. All sod, tar-penetrated strips and other unsuitable material shall be removed to the extent required by the Resident. Suitable excavated granular material may be used to fill low areas and to widen out to provide a uniform shoulder width as required. Where required by the Resident the edge of the existing traveled lane shall be cut to provide a uniform edge.

For proposed paved shoulders the surface of the existing shoulder shall be